

That which is claimed is:

1. A pilot synchronization channel structure for code division multiple access communication systems, comprising:

a synchronization channel (SCH) defined in wideband code division multiple access (WCDMA) protocol; and

a pilot channel overlapping the synchronization channel (SCH);
wherein the pilot channel comprises data frames comprising p time slots; and wherein
each time slot is packed with m pre-selected pilot symbols after spread spectrum and
scrambling, wherein m and p are positive integers.

10 2. The pilot synchronization channel structure according to claim 1, wherein the first symbol of said m pilot symbols is 0, and the other symbols of said m pilot symbols are 1 or -1.

3. The pilot synchronization channel structure according to claim 2, wherein the pilot channel overlaps the synchronization channel (SCH) so that each time slot transmits a search code, comprised of a primary synchronization code and a secondary synchronization code, of one symbol length first, then transmits a pilot signal of $m - 1$ symbols length.

4. The pilot synchronization channel structure according to claim 1, wherein all of said m pilot symbols are 1 or -1.

20 5. The pilot synchronization channel structure according to claim 4, wherein
the pilot channel overlaps the synchronization channel (SCH) so that each time slot
transmits two parts of a signal simultaneously, one part of the signal comprising a search
code, comprised of a primary synchronization code and a secondary synchronization
code, of one symbol length and $m - 1$ symbols "0", and another part of the signal
25 comprising a pilot signal of m symbols length transmitted continuously.

6. The pilot synchronization channel structure according to claim 1, wherein said pilot symbols have a length of n chips, said time slots have a length that satisfies the

formula $m * n = 2560$ chips, and said data frame has a length that satisfies the formula $p * m * n = p * 2560$ chips, wherein n , m and p are all positive integers.

7. The pilot synchronization channel structure according to claim 2, wherein
said pilot symbols have a length of n chips, said time slots have a length that satisfies the
5 formula $m * n = 2560$ chips, and said data frame has a length that satisfies the formula $p * m * n = p * 2560$ chips, wherein n , m and p are all positive integers.

8. The pilot synchronization channel structure according to claim 4, wherein
said pilot symbols have a length of n chips, said time slots have a length that satisfies the
formula $m * n = 2560$ chips, and said data frames have a length that satisfies the formula
10 $p * m * n = p * 2560$ chips, wherein n , m and p are all positive integers.